

REMARKS

I. Rejections Under 35 U.S.C. §112

In the Office Action dated August 30, 2004, the Examiner rejected claims 1, 3, 6, 14, 25 and 28 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicants regards as the invention.

Regarding claim 1, the Examiner argued that "drives an output voltage to an input voltage" is unclear claim language. The Examiner asserted that it appears that the Applicant is attempting to recite some type of feedback here, but indicated that this is unclear from the present language. The Examiner also stated that "which is divided by a value of two" is also unclear. The Examiner asked what is this referring to and what input voltage is divided by a value of two?

The Applicant respectfully disagrees with this assessment. Claim 1 has been amended to more particularly claim what is already illustrated and described in the Applicant's specification. Claim 1 as amended now refers to a "first voltage" and a "second voltage" which are both shown clearly in FIG. 4 (i.e., V_1 and V_2). Claim 1 as amended also now refers to a "positive input" and a "negative input" of an "amplifier" of an InSb signal-condition circuit, as also shown in FIG. 4 and referred to in Applicant's specification. Applicant points out that the positive input can function as a "non-inverting input" while the negative input can be thought of as an "inverting input". Regarding the issue of "divided by a value of two," the Applicant notes that claim 1 as amended now indicates that the first voltage at said positive input drives an output voltage generated by said InSB signal-conditioning circuit to a value equivalent to that of said first voltage, which is divided by a value of two, thereby generating a resulting voltage value, which is utilized to automatically calibrate said magnetoresistive half-bridge signal for temperature compensation purposes. The actual "divided by a value of two" is supported by Applicant's specification. For example, the Applicant at page 7 in the "brief summary of the

invention" section of the specification indicates that "...the circuit is required to operate around $V_s/2$, where V_s is the supply voltage, to maximize the useful dynamic range of the circuit...this requires a voltage bias to obtain $V_s/2$ ". Based on the foregoing, the Applicant submits that claim 1 now overcomes the Examiner's rejection under 35 U.S.C. § 112.

Regarding claim 3, the Examiner argued that "offset correction voltages" lacks clear antecedent basis. That is, the Examiner argued that if this is referring to the offset correction voltage already recited in claim 1, then appropriate amendments need to be made in order that proper antecedence be provided. The Examiner also asserted that claim 3 should be cancelled because it does not further limit the scope of claim 1, which the Examiner indicated is improper. The Examiner argued that all of the claim limitations of claim 3 are already included in claim 1). The Applicant respectfully disagrees with this assessment and notes that claim 3 has been cancelled by amendment as indicated herein. Therefore, the Examiner's rejection to claim 3 is rendered moot in light of the cancellation of claim 3 by amendment.

Regarding claim 6, the Examiner argued that claim 6 is improper because it is not supported by the originally filed specification. The Applicant respectfully disagrees with this assessment and notes that claim 6 has been cancelled by amendment as indicated herein. Therefore, the Examiner's rejection to claim 6 is rendered moot in light of the cancellation of claim 6 by amendment.

Regarding claims 14 and 25, the Examiner argued that "located in an inverting input" is improper, for the reasons noted in the previous office actions. The Applicants respectfully disagree with this assessment and note that amended claims 14 and 25 no longer refer to "located in an inverting input" but instead indicate that that InSb signal-conditioning circuit comprises at least one magnetoresistor in series with at least one resistor connected to said negative input of the amplifier associated with said InSb signal-conditioning circuit. It is therefore believed that these modifications to claims 14 and 25, which are supported by Applicant's specification, now overcome the rejection to claims 14 and 25 under 35 U.S.C. § 112.

Regarding claim 28, the Examiner objected to claim 28, arguing that it is improper to recite “a voltage” as one of the elements of the claims system (arguing that only physical elements or means, and their associated connections should be recited). The Applicant respectfully disagrees with this assessment and notes that claim 28 as now amended does not recite a voltage as one of the elements of the system. Therefore, the Applicant submits that the rejection to claim 28 under 35 U.S.C. § 112 has now been traversed.

Based on the foregoing, Applicant respectfully requests reconsideration and withdrawal of the rejections to claims 1, 3, 6, 14, 25, and 28 under 35 U.S.C. § 112.

II. Rejections Under 35 U.S.C. §102(b)

Requirements for *Prima Facie* Anticipation

A general definition of *prima facie* unpatentability is provided at 37 C.F.R. §1.56(b)(2)(ii):

A *prima facie* case of unpatentability is established when the information *compels a conclusion* that a claim is unpatentable under the preponderance of evidence, burden-of-proof standard, giving each term in the claim its broadest reasonable construction consistent with the specification, and before any consideration is given to evidence which may be submitted in an attempt to establish a contrary conclusion of patentability. (*emphasis added*)

"Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration." *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303, 313 (Fed. Cir. 1983) (citing *Soundscriber Corp. v. United States*, 360 F.2d 954, 960, 148 USPQ 298, 301 (Ct. Cl.), *adopted*, 149 USPQ 640 (Ct. Cl. 1966)), *cert. denied*, 469 U.S. 851 (1984). Thus, to anticipate the applicants' claims, the cited reference must disclose each element recited therein. "There must be no difference between the claimed invention and the reference disclosure, as viewed by a person of ordinary skill in the field of the invention." *Scripps Clinic & Research Foundation v. Genentech, Inc.*, 927 F.2d 1565, 18 USPQ 2d 1001, 1010 (Fed. Cir. 1991).

To overcome the anticipation rejection, the applicants need only demonstrate that not all elements of a *prima facie* case of anticipation have been met, *i. e.*, show that the cited reference fails to disclose every element in each of the applicants' claims. "If the examination at the initial state does not produce a *prima facie* case of unpatentability, then without more the applicant is entitled to grant of the patent." *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443, 1444 (Fed. Cir. 1992).

Schroeder et al

In the above-captioned Office Action, the Examiner rejected claims 1, 3-5, 7-10, 15, 17-19 and 21-24 under 35 U.S.C. §102(b) as being anticipated by Schroeder et al., "Schroeder" (U.S. Patent No. 4,924,696).

Regarding claims 1 and 15, the Examiner noted FIG. 5 of Schroeder, arguing that FIG. 5 shows the application of an "offset correction voltage" on line 178 to a non-inverting input of an amplifier 176; the magnetoresistor half bridge formed by MR resistors 136 and 138. The Examiner further stated that the language "drives an output voltage...to an input voltage...which is divided by two" is not understood and thus cannot be relied upon to define Schroeder. The Examiner also argued that the language "which is utilized to automatically calibrate..." is merely the intended use of the Applicant's claimed invention and likewise cannot be relied upon to define over Schroeder.

The Applicant respectfully disagrees with this assessment and notes that the Examiner has failed to establish a case of anticipation under 35 U.S.C. §102(b) as provided by the *prima facie* anticipation test referred to above. The Applicant reminds the Examiner in order to establish a case of anticipation under 35 U.S.C. §102(b), the reference utilized as a basis for such a rejection must disclose each and every claim limitation of the rejected claim. In this case, Schroeder does not disclose all of the elements recited by Applicant's claim 1.

In general, Applicant's claim 1 is directed toward a method for signal-conditioning utilizing a signal-conditioning circuit. Schroeder does not teach all of the following elements of Applicant's amended claim 1: applying a first voltage to a positive input of an amplifier of an InSb signal-conditioning circuit, wherein said first

voltage is offset from a second voltage, wherein said first and second voltages together comprise an input voltage that is input to said InSb signal-conditioning circuit; and applying a magnetoresistor half-bridge signal to a negative input of said amplifier of said InSb signal-conditioning circuit, wherein said first voltage at said positive input drives an output voltage generated by said InSb signal-conditioning circuit to a value equivalent to that of said first, which is divided by a value of two, thereby generating a resulting voltage value, which is utilized to automatically calibrate said magnetoresistive half-bridge signal for temperature compensation purposes. Schroeder does not, for example, teach the generation of a voltage value that is utilized to automatically calibrate a magnetoresistive half-bridge signal for temperature compensation purposes. Additionally, Schroeder does not teach an InSb signal-conditioning circuit. Thus, because Schroeder does not teach all of the limitations of Applicant's amended claim 1, the Applicant submits that the rejection to claim 1 under 35 U.S.C. §102(b) has been traversed and should be withdrawn.

Regarding claims 3-5, 7 and 8, the Examiner argued that such claims read directly on FIG. 5 of Schroeder. Again, the Applicants respectfully disagree with this assessment. The Applicants note that claim 3 has been cancelled by amendment and also that the arguments presented above against the rejection to claim 1 under 35 U.S.C. §102(b) as being anticipated by Schroeder apply equally to the rejection to claims 4-5 and 7-8 under 35 U.S.C. §102(b) as being anticipated by Schroeder. Based on this reasoning, claims 3-5 and 7-8 do not read on Schroeder. Claims 4-5 and 7-8 are dependent upon claim 1 and incorporate all of the limitations of claim 1. Thus, because Schroeder does not disclose all of the limitations of claim 1, the rejection to claims 4-5 and 7-8 is also traversed and should be withdrawn.

Regarding claims 9-10, the Examiner argued that the third and fourth resistors set forth in claims 9 and 10 read on resistors 174 and 180 respectively. Again, the Applicants respectfully disagree with this assessment. The Applicants note that the arguments presented above against the rejection to claim 1 under 35 U.S.C. §102(b) as being anticipated by Schroeder apply equally to the rejection to claims 9-10 under 35 U.S.C. §102(b) as being anticipated by Schroeder. Based on this reasoning, claims 9-10 do not read on resistors 174 and 180, because the

circuit of Schroeder does not teach all of the limitations of the claims 9-10, which include all of the limitations of the claims from which they depend. Thus, because Schroeder does not disclose all of the limitations of claim 1, the rejection to claims 9-10 is also traversed and should be withdrawn.

Regarding claims 17-24, the Examiner argued that such claims are seen to recite the same limitations as the above-noted claims and thus are anticipated as well. The Applicants respectfully disagree with this assessment. The Applicants note that the arguments presented above against the rejection to claim 1 under 35 U.S.C. §102(b) as being anticipated by Schroeder apply equally to the rejection to claims 17-24 under 35 U.S.C. §102(b) as being anticipated by Schroeder. Thus, Because Schroeder does not teach all of the claim limitations of claims 17-24, which include all of the limitations of Applicants' claim 15, including an InSb signal-condition circuit. Again Schroeder does not mention the use of InSb in the context of a signal-conditioning circuit.

Therefore, because Schroeder does not teach all of the limitations of Applicant's claims 17-24 (i.e., which include all of the limitations of the claims from which claims 17-24 depend), the Applicant submits that the rejection to claims 17-24 under 35 U.S.C. §102(b) as being anticipated by Schroeder has been traversed and should be withdrawn. Based on the foregoing the Applicant respectfully requests withdrawal of the rejection to claims 1, 3-5, 7-10, 17-19 and 21-24 under 35 U.S.C. §102(b) as being anticipated by Schroeder.

Sudo or Eck

In the above-captioned Office Action, the Examiner rejected claims 1, 6, 15 and 20 under 35 U.S.C. §102(b) as being anticipated by Sudo et al., "Sudo" (U.S. Patent No. 4,480,248) or Eck et al., "Eck" (U.S. Patent No. 5,038,130).

The Examiner argued that each of these references teaches the use of two pairs of magnetoresistive elements in two bridge legs. In support of this argument, the Examiner cited FIG. 7 of Sudo, arguing that resistors 32 through 36 are all magnetoresistors. The Examiner further argued that FIG. 7 of Eck indicates that resistors 52, 54, 56, and 58 are all magnetoresistors.

The Applicant respectfully disagrees with this assessment and notes that the Examiner has failed to establish a case of anticipation under 35 U.S.C. §102(b) as provided by the *prima facie* anticipation test referred to above. The Applicant reminds the Examiner in order to establish a case of anticipation under 35 U.S.C. §102(b), the reference utilized as a basis for such a rejection must disclose each and every claim limitation of the rejected claim. In this case, Sudo and/or Eck do not disclose all of the elements recited by Applicant's claim 1.

In general, Applicant's claim 1 is directed toward a method for signal-conditioning utilizing a signal-conditioning circuit. Sudo and/or Eck do not teach all of the following elements of Applicant's amended claim 1: applying a first voltage to a positive input of an amplifier of an InSb signal-conditioning circuit, wherein said first voltage is offset from a second voltage, wherein said first and second voltages together comprise an input voltage that is input to said InSb signal-conditioning circuit; and applying a magnetoresistor half-bridge signal to a negative input of said amplifier of said InSb signal-conditioning circuit, wherein said first voltage at said positive input drives an output voltage generated by said InSb signal-conditioning circuit to a value equivalent to that of said first, which is divided by a value of two, thereby generating a resulting voltage value, which is utilized to automatically calibrate said magnetoresistive half-bridge signal for temperature compensation purposes. Sudo and/or Eck do not, for example, teach the generation of a voltage value that is utilized to automatically calibrate a magnetoresistive half-bridge signal for temperature compensation purposes.

Additionally, Sudo and/or Eck do not teach an InSb signal-conditioning circuit. Thus, because Sudo and/or Eck do not teach all of the limitations of Applicant's amended claim 1, the Applicant submits that the rejection to claim 1 under 35 U.S.C. §102(b) as being anticipated by Sudo and/or Eck has been traversed and should be withdrawn.

Regarding claim 6, the Applicant again notes that claim 6 has been cancelled by amendment as indicated herein. Regarding claims 15 and 20, the Applicant submits that the arguments presented above against the rejection to claim 1 under 35 U.S.C. §102(b) as being anticipated by Sudo and/or Eck apply equally to the

rejection to claims 15 and 20. Again, Sudo and/or Eck do not teach all of the claim limitations of claims 15 and 20, including any dependent claims thereof. Applicant therefore submits that the rejection claims 1, 6, 15, and 20 under 35 U.S.C. §102(b) as being anticipated by Sudo and/or Eck has been traversed. Applicant respectfully requests withdrawal of this rejection.

III. Rejections Under 35 U.S.C. §103(a)

Requirements for Prima Facie Obviousness

The obligation of the examiner to go forward and produce reasoning and evidence in support of obviousness is clearly defined at M.P.E.P. §2142:

The examiner bears the initial burden of factually supporting any *prima facie* conclusion of obviousness. If the examiner does not produce a *prima facie* case, the applicant is under no obligation to submit evidence of nonobviousness.

M.P.E.P. §2143 sets out the three basic criteria that a patent examiner must satisfy to establish a *prima facie* case of obviousness:

1. some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings;
2. a reasonable expectation of success; and
3. the teaching or suggestion of all the claim limitations by the prior art reference (or references when combined).

It follows that in the absence of such a *prima facie* showing of obviousness by the examiner (assuming there are no objections or other grounds for rejection), an applicant is entitled to grant of a patent. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443 (Fed. Cir. 1992). Thus, in order to support an obviousness rejection, the Examiner is obliged to produce evidence compelling a conclusion that each of the three aforementioned basic criteria has been met.

Schroeder et al.

In the above-captioned Office Action, the Examiner rejected claims 2, 11-14, 16 and 25-28 under 35 U.S.C. §103(a) as being unpatentable over Schroeder et al., "Schroeder" (U.S. Patent No. 4,924,696).

The Examiner argued that the recitation of InSb as the material for forming the signal conditioning circuit (claims 2 and 16) does not define patentably over Schroeder because this is old and well-known. The Examiner argued that the Applicant admits as much in the background discussion of the instant disclosure. The Examiner also argued that admitted as prior art by the Applicant is the use of an InSb magnetoresistor having a negative scale factor temperature coefficient.

The Examiner further argued that the use of a magnet in the signal conditioning circuit also magnetoresistor having a negative scale factor temperature coefficient (citing claims 11, 14, 25, and 28) would have been obvious because this is also old and well-known in the art, for the well-known purposes of varying the resistance values of the magnetoresistors (citing resistors 136 and 138 in FIG. 5 of Schroeder).

The Examiner also asserted that the resistor 174 in FIG. 5 of Schroeder is a fixed temperature coefficient resistor (citing claims 12 and 26) and is in series with the MR's 136, 138 (citing claims 13 and 27).

The Examiner additionally argued that the language "to thereby obtain a flat resultant temperature coefficient..." is merely the result of the claimed method and cannot be relied upon to define over the reference either (only physical elements, connections or functions can be relied upon to define over the applied art).

The Applicant respectfully disagrees with this assessment and asserts that the arguments presented above against the rejection to claims 1, 3-5, 7-10, 15, 17-19 and 21-24 under 35 U.S.C. §102(b) as being anticipated by Schroeder apply equally to the rejection to claims 2, 11-14, 16 and 25-28 under 35 U.S.C. §103(a) as being unpatentable over Schroeder.

The Applicant further asserts that the rejection of claims 2, 11-14, 16 and 25-28 herein fails under the first and third prongs of the aforementioned *prima facie* obviousness test because, for the reasons discussed *infra*. As discussed earlier, Schroeder does not teach and/or disclose all of the claim limitations of Applicants' amended claims, particularly the unique use of InSb for signal conditioning for the purpose of generating a resulting voltage value, which is utilized to automatically calibrate said magnetoresistive half-bridge signal for temperature compensation purposes.

Neither temperature compensation and/or automatic calibration are taught by Schroeder in combination with the use of InSb. Under the third prong of the aforementioned *prima facie* obviousness test, the Examiner must explain how the cited reference (i.e., in this case, Schroeder) teaches each and every claim limitation of the rejected claims. Regarding the use of InSb, the Examiner has not provided a reasonable explanation of a suggestion or motivation, either in the Schroeder reference itself or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Instead, the Examiner has only stated that this is "old" and discussed in the background section of Applicant's specification. Applicant's prior art does not teach all of the elements of Applicant's claims, particularly the use of InSb and an InSb signal-conditioning circuit in combination with temperature compensation and automatic calibration components.

The Applicants remind the Examiner that the language of the reference may not be taken out of context without motivation, in effect producing the words of the claims (and sometimes, not even the words or concepts of the claims), without their meaning or context. The resultant suggestion with respect to InSb provided by the Examiner would not yield the invention as claimed. The claims are rejected under 35 U.S.C. §103(a) and no showing has been made to provide the motivation as to why one of skill in the art would be motivated to make such a combination, and further fails to provide the teachings necessary to fill the gaps in these references in order to yield the invention as claimed. The rejections under 35 U.S.C. §103(a) have provided no more motivation than to simply point out the

individual words of the Applicant's claims among the references, but without the reason and result as provided in the Applicant's claims and specification, and without reason as to why and how the references could provide the Applicant's invention as claimed. Hindsight cannot be the basis for motivation, which is not sufficient to meet the burden of sustaining a 35 U.S.C. §103(a) rejection. Thus, Examiner has failed to satisfy the first prong of the aforementioned prime facie obviousness test. As such there is no teaching, motivation, or knowledge that can satisfy M.P.E.P. §2143. Based on the foregoing, the Applicant submits that the rejection to claims 2, 11-14, 16 and 25-28 under 35 U.S.C. §103(a) as being unpatentable over Schroeder has been traversed. The Applicant respectfully requests withdrawal of this rejection.

IV. Prior Art Made of Record

The Examiner indicated that the prior art made of record and not relied upon is considered pertinent to the Applicant's disclosure. The Examiner stated that the remaining references are also seen to anticipate at least independent claims 1 and 15 as well as several of the dependent claims. The Applicant notes that the Examiner has not provided an explanation of how such prior art references anticipate each and every claim limitation of Applicant's claims.

V. Conclusion

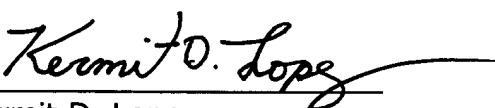
Applicants have amended the claims to more particularly disclose the invention claimed thereof. It is believed that support for such amendments is provided within the specification, and that the specification adequately enables such amendments. No new subject matter has been introduced as a result of this amendment.

Applicants have therefore responded to each and every objection and rejection of the Official Action, and respectfully request that a timely Notice of

Allowance be issued. If a telephone conference would be of assistance in advancing the prosecution of this application, the Examiner is invited to call applicants' attorney at the below-indicated telephone number.

Respectfully submitted,

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